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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/792,271

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Martinus Agnes Willem Cuijpers

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EXAMINER

PRESTON, ERIK D

ART UNIT

PAPER NUMBER

2834

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/20/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary****Application No.**

10/792,271

**Applicant(s)**CUIJPERS, MARTINUS AGNES  
WILLEM**Examiner**

Erik D. Preston

**Art Unit**

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2, 4, 5, 7-20, 24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) 17, 18, 24 and 25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5, 7-16, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/29/2007 has been entered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,2,4,9-16,19 & 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chitayat (US 4985651 previously cited) in view of Iwamoto et al. (US 2002/0018195).

With respect to claims 1,19 & 20, Chitayat teaches a system for carrying and moving an object in a plane comprising: An object carrier (Fig. 1, #36); a first and second linear actuator (Fig. 1, 32 & 34 respectively, and of the same construction as the linear motor depicted in Fig. 2, #20 [Col. 5, Line 62-Col. 6, Line 12]) configured to support said object carrier and move said object carrier in a first direction (Y-axis), said first and second linear actuators being electromagnetic linear actuators comprising: a

magnetic structure (Fig. 2, #23) and a coil structure (Fig. 2, #54), wherein the coil structure and the magnetic structure are positioned relative to each other and separated by an air bearing (Fig. 2, #50 & 52) that is adapted to support said object carrier; a third and fourth linear actuator (Fig. 1, #20 & 22 respectively) configured to move said object carrier in a second direction (X-axis), said third and fourth linear actuators extending in parallel along said second direction (as seen in Fig. 1), but it does not teach that both the coil structure and the magnetic structure of the third and fourth linear actuators are movable with respect to each other, the coil structure or the magnetic structure of the linear actuators being configured as a balance mass to receive reaction forces arising from the movement of the other of the coil structure or magnetic structure.

However, Iwamoto teaches a moving mechanism with a pair of linear actuators (Fig. 1A, #8) that are movable with respect to one another (Abstract), wherein a coil structure (Fig. 1A, #1 & 1') is configured as a balance mass to receive reaction forces arising from the movement of the magnetic structure (Paragraph 37). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the linear actuators of Chitayat in view of the movable coil structure and magnetic structure as taught by Iwamoto because it provides a means for reducing the vibrations that result from the motion of a stage (Iwamoto, Paragraph 16).

With respect to claim 2, Chitayat in view of Iwamoto teaches the system of claim 1, and Chitayat teaches that said third and fourth linear actuators support said first and second linear actuators.

With respect to claim 4, Chitayat teaches in view of Iwamoto teaches the system of claim 2, and Chitayat teaches that said third and fourth linear actuators each comprise an air bearing to support said first and second linear actuators (as seen in Fig. 2).

With respect to claim 9, Chitayat in view of Iwamoto teaches the system of claim 1, and Chitayat teaches that said object carrier is positioned relative to said first and second linear actuators such that a vertical line running through a center of gravity of said object carrier is located between said first and second linear actuators (as seen in Fig. 1).

With respect to claim 10, Chitayat in view of Iwamoto teaches the system of claim 2, and Chitayat teaches that said first and second actuators are positioned relative to said third and fourth linear actuators such that a common center of gravity of said first and second linear actuators is positioned between said third and fourth linear actuators (as seen in Fig. 1).

With respect to claim 11, Chitayat in view of Iwamoto teaches the system of claim 1, and Chitayat teaches that said first and second actuators are substantially symmetrically positioned with respect to the center of gravity of said object carrier (as seen in Fig. 1).

With respect to claim 12, Chitayat in view of Iwamoto teaches the system of claim 1, and Chitayat teaches that said third and fourth actuators are substantially symmetrically positioned with respect to the common center of gravity of the first and second linear actuators (as seen in Fig. 1).

With respect to claim 13, Chitayat in view of Iwamoto teaches the system of claim 1, and Chitayat teaches that said first and second linear actuators are positioned at opposite ends of the object carrier (as seen in Fig. 1).

With respect to claim 14, Chitayat in view of Iwamoto teaches the system of claim 2, and Chitayat teaches that said third and fourth linear actuators are positioned at opposite ends of said first and second linear actuators (as seen in Fig. 1).

With respect to claim 15, Chitayat in view of Iwamoto teaches the system of claim 1, and Chitayat teaches that said second direction is perpendicular to said first direction (as seen in Fig. 1).

With respect to claim 16, Chitayat in view of Iwamoto teaches the system of claim 1, and Chitayat teaches a control system configured to control said first and second linear actuators (Col. 6, Lines 13-18).

Claims 5,7 & 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chitayat (US 4985651, previously cited) in view of Iwamoto et al. (US 2002/0018195) further in view of Chitayat (US 5519266 previously cited).

With respect to claims 5 & 7, Chitayat ('651) in view of Iwamoto teaches the system of claims 1 & 2, and Chitayat teaches that the relative positioning of the coil structure and the magnetic structure of the four linear actuators is configured such that the row of magnetic poles is positioned opposing the teeth, the coil structure and the magnetic structure being separated by an air bearing, but it does not teach the specifics of the components of the linear actuators. However, Chitayat ('266) teaches linear

actuators comprising: a magnetic structure (Fig. 3, #54) having a row of alternating magnetic poles on an outer surface thereof, said row being oriented in said first direction; and a coil structure (Fig. 3, #45) having an iron core (Fig. 3, #44) with a number of teeth in a row orientated in said first direction and having a number of coils wound around a respective number of said teeth. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the linear actuators of Chitayat ('651) in view of the linear actuator as taught by Chitayat ('266) because it provides a dynamoelectric actuator similar to the type as is taught by Chitayat ('651) that provides many benefits not present in conventional linear actuators (Chitayat ('266), Col. 2, Lines 34-67).

With respect to claim 8, Chitayat ('651) in view of Iwamoto in view of Chitayat ('266) teaches the system of claim 7, and Chitayat ('651) teaches that said air bearing for separating the coil structure and the magnetic structure supports said first and second linear actuators (as seen in Fig. 2).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1,2,4,5,7-16,19 & 20 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erik D. Preston whose telephone number is (571)272-8393. The examiner can normally be reached on Monday through Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



04/12/2007



BURTON S. MULLINS  
PRIMARY EXAMINER